

Hawks (accipiters)



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Hawks are found throughout the world, virtually everywhere there are forests. There are numerous species in the tropics, especially in the Indo-Malayan region where they probably originated. But in North America, north of Mexico, there are only three species: the Sharp-shinned Hawk, Cooper's Hawk and the Goshawk.

Other birds of prey popularly referred to as hawks, such as falcons, harriers and buzzards, are not true hawks, or *accipiters*, in the strict zoological sense. All are flesh-eating birds which hunt their food by day, however, and members of the group of birds known as *diurnal raptors*.

Both the Sharp-shinned Hawk and Cooper's Hawk are unique to North America, although they are closely related to Mexican and Central American species and probably originated there. The larger Goshawk, on the other hand, is found in Europe, Australia, central and northern Asia and parts of Africa as well as North America. It probably reached here from Asia via Siberia.

Apearance

The most notable variation is in size, which ranges from the ten-inch, ten-ounce Sharp-shinned Hawk, through the middle-sized Cooper's Hawk, to the two-foot, three-pound Goshawk. All three North American hawks are otherwise alike in appearance: their colourings are similar, and they all have small heads, long tails, and comparatively small, blunt-ended wings.

In all three species the colour of the young birds is strikingly different from that of the adults. First-year accipiters are always brown: sepia to chocolate brown above, pale tawny or yellowish brown to creamy white below. The feathers of the back are broadly edged with white or near white, and crossbarred with darker brown, giving the back a coarsely barred appearance. The pale breast and flanks are streaked lengthwise with very dark brown, and the wings and tail are crossbarred with dark bands. The eyes are amber to yellow.

In the adults, on the other hand, the upper surfaces are a uniform blue-gray in all three species. Below, the two smaller species appear reddish brown, due to broad, even crossbarring of this colour on an almost white ground. The Goshawk is similarly crossbarred below with gray, but these markings are so fine and so closely spaced as to appear a uniform pale gray at any distance. In the adults of all three species the long feathers under the tail are snowy white, and the eyes change to deep red as the bird grows older.

Their flight is most distinctive. These hawks seldom soar; they fly in a direct, purposeful way just at or a little below tree-top level with four or five quick, sharp wingbeats followed by a short glide. With an instinctive ability to be unobtrusive and unobserved, they seldom perch on tree-tops, preferring the concealment of the side-limbs of a well-foliaged tree.

Range and habitat

The range of the three North American hawks covers the entire continent from the tree line south. But of the three, only the Sharp-shinned Hawk occurs over the whole range: it can be found either as a migrant or as a nesting species from the tropics to the northern limit of trees. As a breeding bird, it very much favours the northern spruce-tree zone or boreal forest. It is by no means confined there, however, and will breed southward in almost any timbered or bushy area, especially where hills and mountains provide reasonably cool climates. It is perhaps the most abundant hawk in Canada in summer. The Sharp-shinned Hawk is intolerant of cold weather and moves southward in large numbers to winter in the tropics and sub-tropics. It is the most migratory of all North American birds of prey, and many members of the species fly the entire length of the continent in their migrations between breeding and wintering ranges.

The Cooper's Hawk has a generally more southerly breeding range, and is considerably less migratory. It is the common forest and bush-country hawk of the mid latitudes of the continent: the hardwood forests of southern Ontario and the eastern United States; the bushy or lightly timbered coulees and river bottoms of the southern Canadian prairies and the plains states; and the scrub-oak or mixed fir-oak forests of the western mountains. It does not penetrate the northern spruce forests at all, and it could best be described as a reluctant migrant, for although it withdraws from the northern portions of its breeding range in winter, it winters much farther north than does the little sharp-shin.

The North American Goshawk, originating as it did from a Siberian ancestral stock, is a true northerner. Its stronghold for both breeding and wintering is the broad belt of spruce, aspen and birch forest that extends right across the northern one-third of the continent from Alaska to Newfoundland. The breeding range extends southward only where high mountains and the associated cool coniferous forests provide conditions similar to those of the northern spruce forests. In the east, Goshawks are rare during the breeding season south of the 45th parallel; in the west they reach their southern limit in the mountains of northern Mexico at elevations above 10,000 feet. The species is not truly migratory, for many adults winter as far north as the species breeds. There are, however, some fairly well-defined annual movements of Goshawks, particularly in the eastern half of the continent.

The most distinctive travels of the Goshawk, however, are its great immigrations to the mid latitudes at widely spaced, irregular intervals. These apparently coincide with the cycles of the Ruffed Grouse and snowshoe hare, both favorite prey of Goshawk in the boreal forest region. Every nine or ten years, there are "crashes" in



Accipiters have short, rounded wings and long straight tails. The wings are an apparent adaptation for chasing birds in heavily forested areas.



Buteos have large rounded wings and fan-shaped tails.



Falcons have pointed wings and straight tails.



Harriers have long rounded wings and long tails.

the grouse and hare populations due to major die-offs, and the great birds are forced to fly south in search of other food. In those years when the die-offs of grouse and hare coincide, the Goshawk invasions of the south become even more spectacular.

Breeding and nesting

Hawks are among the most secretive of birds in their nesting activities, and their nests are seldom found except by accident. All are tree-nesters, but the requirements of the three species are somewhat different.

The Sharp-shinned Hawk likes semi-open country set with dense groves of spruce or similar trees. For its nest, it builds a relatively enormous platform — almost two feet across — on the low side-limbs of an evergreen, only 12 to 14 feet from the ground. This species raises broods of between six and eight young, the most of any raptor. Sharp-shinned Hawks are daring and pugnacious in defence of the nest and unhesitatingly attack any intruder. Only their small size prevents them from being dangerous to man, for they make hard contact when they strike.

The Cooper's Hawk prefers tall, well-grown trees for its nests. It does not like heavy, continuous forest, but rather groves of trees covering some 20 to 80 acres adjacent to open fields or grassy hillsides. The nest is nearly always well hidden in a densely foliated tree, anchored in the fork of one or two large branches and seldom less than 40 feet from the ground. The nest itself is often smaller than that of the Sharp-shinned Hawk and strongly resembles a crow's nest. The Cooper's are among the shiest of hawks: at the first sign of human intrusion they tend to slip away silently and unobtrusively. If the nest-tree is climbed, they may show themselves, but the protest is brief and attacks are almost unknown. This species lays up to five eggs but seldom raises more than four young each season.

Goshawks, in spite of their far northern or high-elevation breeding grounds, begin their nesting activities a full month earlier than either of the smaller accipiters. Two to four eggs are in the nest by early or mid April, and incubation is under way while snow is still on the ground and nighttime temperatures are well below freezing. Goshawks seem to have an absolute requirement for coniferous forest when nesting, and although the nest itself may be in a deciduous tree, that tree is usually in deep spruce or pine woods. The nest itself is usually situated in a three way fork anywhere from 20 to 70 feet from the ground, depending on the size of the timber.

Young Goshawks leave the nest in the first half of July, and once they are on the wing the adults no longer defend the nest territory. But until then any point within half a mile of a Goshawk's nest can be very dangerous, for these hawks are ex-

tremely savage, and large enough to do real damage. Sometimes the attack is preceded by loud, excited cries, but just as often there is no warning at all, just a hard, slashing strike from the powerful, well-armed feet, generally aimed at the intruder's head and delivered with such speed and dexterity that they are almost impossible to dodge. The Goshawk is possibly the most dangerous of all North American birds, and it is just as well that it nests in remote wilderness areas and early in the year.

Food and hunting

Accipitrine hawks are primarily bird hunters. This is especially true of the smaller species in the temperate zones, and both the Sharp-shinned and Cooper's Hawks feed on little else, only occasionally taking small mammals. The Sharp-shinned Hawk's migrations follow the hosts of sparrows, finches and warblers into the northern forests in summer and back to the subtropics in winter. The Cooper's Hawk lives on the somewhat larger forest and bushland birds of the mid latitudes: robins, flickers, jays and quail. The Goshawk, on the other hand, feeds on mammals as well as birds, depending on what is available. In fact, at certain times and places mammals make up well over half its food supply. Its favourite prey includes grouse, snowshoe hares and ground squirrels.

These hawks hunt by stealth and surprise whenever possible, although they must also show great speed at times, especially when hunting other birds. Two methods of hunting are commonly used. In one, the hawk sits in a thick tree and watches for a prospective victim to move away from its cover. Once the prey is spotted, the hawk launches itself into the air very quietly, dives straight down for a few feet to pick up air speed, then flattens out and glides on motionless wings straight toward the quarry. As long as the intended victim remains unaware of its approach, the hawk does not beat its wings. But most birds do detect the gliding hawk and take flight: at that moment the hawk puts on a tremendous burst of speed in an effort to close up and make the strike before the quarry can reach cover.

A more speculative but still effective way of hunting is for the hawk to cruise along the edge of the woods, along creeks or rivers, or just below tree-top level in the woods, on the chance of surprising something far enough away from cover to attempt a high-speed dash. The distance the hawk will chase varies somewhat with circumstances, but generally the two smaller species seldom pursue a quarry much more than a hundred yards. The Goshawk is both swifter and more persistent and will press its attack on such birds as Ruffed Grouse, ptarmigan and pheasant for distance of half a mile, particularly if the flight course is across open ground.

Management

The accipitrine hawks, long considered by many people to be destructive to the song bird populations, are actually of great service to their prey species. Their method of attack tends to test the birds they hunt for alertness and speed: they pick off the sick or injured, cull out the unfit, and eliminate any that try to live in poor habitat or to feed too far from good cover. They also act as a dispersal agent in breaking up groupings of grouse and quail. Goshawks especially were once believed a serious menace to introduced game birds such as Gray Partridge and pheasant, through their infrequent invasions of the mid continent. Although they do sharply reduce the populations of these species, they do so far more selectively than hunters with shotguns, and thus ensure that the quality of these pampered birds does not deteriorate.

In recent years there has been a marked decrease in the number of hawks and other bird-eating raptors in North America. This trend began, and is most serious, among the species found in the great agricultural areas of the middle latitudes, such as Cooper's Hawk. Research has shown that there are insecticide residues in some hawks, and their population decline is probably due to indirect poisoning by insecticides. This occurs, for example, when seed grain treated with insecticides is eaten by birds. These grain-eating birds are eaten in turn by hawks. In this sort of food chain, insecticides that do not decompose much, such as DDT and dieldrin, accumulate at higher levels in each succeeding link, so that the hawks build up significantly more insecticide residues than do their prey. These residues, reaching levels poisonous enough to interfere with reproduction, are the most probable cause of the decline in hawks.

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